

II. AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims

Claim 1 (Currently Amended): An olefin polymerization catalyst, having a solid catalyst component and an organoaluminum compound, comprising:

(A) a solid catalyst component being prepared by copulverizing a magnesium compound, said magnesium compound ~~[[is]]~~ being represented by the general formula $Mg(OR)_{2-n}X_n$ wherein R is an alkyl radical containing up to 12 carbon atoms, $1 \leq n \leq 2$ and X is a halogen atom; an aluminum compound, said aluminum compound being represented by the general formula $Al(OR')_3$ wherein R' is an alkyl radical containing up to 12 carbon atoms or an aryl group; an electron donor from organic compounds which contain at least one atom selected from oxygen, silicon, nitrogen, sulfur and phosphorus atoms, and a titanium compound; and

(B) an organoaluminum compound.

Claim 2 (Currently Amended): ~~[[A]]~~ The catalyst according to claim 1 wherein said magnesium compound is selected from the group consisting of magnesium dichloride, magnesium dibromide, magnesium difluoride, magnesium diiodide, magnesium ethoxchloride, magnesium methoxychloride and magnesium isopropoxychloride.

Claim 3 (Currently Amended): [[A]] The catalyst according to claim 2 wherein said magnesium compound is magnesium dichloride.

Claim 4 (Original): The catalyst according to claim 1 wherein said aluminum compound is represented by the general formula $Al(OR^1)_r(OR^2)_s$ wherein R^1 and R^2 are different and are each alkyl radicals containing up to 12 carbon atoms or an aryl group, and $r+s=3$.

Claim 5 (Currently Amended): [[A]] The catalyst according to claim 1 wherein said aluminum compound is represented by the general formula $Al(OR')_3$ wherein R' is an alkyl radical containing up to 12 carbon atoms.

Claim 6 (Currently Amended): [[A]] The catalyst according to claim 5 wherein said aluminum compound is selected from the group consisting of aluminum trimethoxide, aluminum tri-n-propoxide, aluminum triisopropoxide, aluminum tri-n-butoxide, aluminum tri-sec-butoxide, aluminum tri-t-butoxide, diethoxyaluminum butoxide, ethoxyaluminum dibutoxide and aluminum phenoxide.

Claim 7 (Original): The catalyst according to claim 6 wherein said aluminum compound is selected from the group consisting of aluminum triethoxide and aluminum trimethoxide.

Claim 8 (Currently Amended): [[A]] The catalyst according to claim 1 wherein said electron donor is selected from the groups consisting of ethers, alcohols, esters, ketones, silanes, amines, acyl halides, phosphines, and phosphine amides.

Claim 9 (Currently Amended): [[A]] The catalyst according to claim 8 wherein said esters are saturated or unsaturated eaters represented by the formula R^1COOR^2 wherein

R¹ and R² each is alkyl, alkenyl, aralkyl, cycloalkyl or aryl, or those substituted with halogen, or cyclic esters.

Claim 10 (Currently Amended): [[A]] The catalyst according to claim 9 wherein said esters are selected from the group consisting of butyl formate, ethyl acetate, butyl acetate, ethyl acrylate, ethyl butyrate, isobutyl isobutyrate, methyl methacrylate, diethyl maleate, diethyl tartrate, ethyl cyclohexanecarbonate, ethyl benzoate, ethyl p-methoxybenoate, methyl p-methylbenzoate, ethyl p-tert-butylbenzoate, dialkyl phthalate, diallyl phthalate, and ethyl alpha-naphthoate.

Claim 11 (Currently Amended): [[A]] The catalyst according to claim 8 wherein silanes are selected from the group consisting of tetrahydrocarbylsilanes and their halogen or alkoxy derivatives, linear or cyclic organopolysilanes, siloxane polymers, and other silicon-containing organic compounds.

Claim 12 (Currently Amended): [[A]] The catalyst according to claim 11 wherein said silanes are selected from the group consisting of tetramethylsilane, trimethylphenylsilane, diethyldichlorosilane, phenyltrichlorosilane, diphenyldichlorosilane, trimethoxymethylsilane, diphenyldimethoxysilane, dimethyldiethoxysilane, diethyldiethoxysilane, triphenylethoxysilane, hexaphenyldisilane, dimethypolysiloxane, diphenylpolysiloxane, and 2-(trimethoxysilyethyl) pyridine.

Claim 13 (Currently Amended): [[A]] The catalyst according to claim 1 wherein said titanium compound is represented by the formula $Ti(OR'')_{4-p}X_p$ wherein R'' is an alkyl radical containing up to 12 carbon atoms, $1 \leq p \leq 4$ and X is a halogen atom.

Claim 14 (Currently Amended): [[A]] The catalyst according to claim 15 wherein said titanium compound is selected from the group consisting of titanium tetrachloride, triethoxytitanium chloride, diethoxytitanium dichloride, tributoxytitanium chloride, dibutoxytitanium dichloride, butoxytitanium trichloride and ethoxytitanium trichloride.

Claim 15 (Currently Amended): [[A]] The catalyst according to claim 1 wherein said catalyst components have ratios of: the mole ratio of the aluminum compound to the magnesium compound from 0.005:1 to 1:1, the mole ratio of the electron donor to the magnesium compound from 0.005:1 to 1:1, and the amount of titanium in the resulting solid from 0.5 to 10% by weight.

Claim 16 (Currently Amended): [[A]] The catalyst according to claim 1 wherein said organoaluminum compound is represented by the formula $AlR^{'''}_qY_{3-q}$ wherein $R^{'''}$ represents hydrogen or an alkyl radical containing up to 12 carbon atoms, Y represents a halogen or an alkoxy group having from about 1 to 2 carbon atoms and q is in a range of $1 \leq q \leq 3$.

Claim 17 (Currently Amended): [[A]] The catalyst according to claim 16 wherein said organoaluminum compound is selected from the group consisting of triethylaluminum, tri-n-propylaluminum, tri-iso-butylaluminum, tri-n-octylaluminum, tri(2-methylpentyl) aluminum, di-iso-butylaluminum hydride, ethylaluminum sesquichloride, diethylaluminum chloride, ethylaluminum dichloride, diethylaluminum ethoxide, diethylaluminum iodide, methylaluminoxane, and ethylaluminoxane, and among them triethylaluminum is particularly preferable.

Claim 18 (Currently Amended): [[A]] The catalyst according to claim 1 wherein the molar ratio of the organoaluminum compound to the metal titanium in the solid catalyst component A may range 1000:1 to 0.5:1.

Claims 19-20 (Cancelled)